

TITLE

CO NOWEGO: AVAMAR 7.3

| Status | Elapsed | Server | Progress Bytes | New Bytes | Client | Domain |
|---|-------------|-------------------|----------------|-----------|-------------------|-------------------------|
| <input checked="" type="checkbox"/> Completed | 00h:00m:54s | DD - 10.64.123.58 | 200,0 GB | <0.05% | testw | ... /vc3.labd.local |
| <input checked="" type="checkbox"/> Completed | 00h:00m:59s | DD - 10.64.123.58 | 200,0 GB | <0.05% | MSSQL2012R2 | ... /vc3.labd.local/... |
| <input checked="" type="checkbox"/> Completed | 00h:00m:28s | Avamar | 6,5 GB | <0.05% | posaolkowdl4c.... | ... /clients |



AVAMAR

v. 7.3

Daniel Olkowski
EMC Data Protection Europe EAST

Agenda

- Linux Fast Incrementals
- VMware performance
- HyperV Fast Incrementals
- OpenStack
- Data Domain enhancements
- Improvements in database / application modules
- Tape out / ADMe
- New hardware

Linux Fast Incrementals

Linux Fast Incrementals Introduction



Protects high density filesystem(s)



Change tracking captures up-to-date
filesystem change journals



Maintains logs of latest filesystem metadata
change for multiple file(s) operations



Eliminates need to scan/read entire
filesystem

Linux Fast Incrementals

- No Scanning Necessary
 - File system change tracking
 - Full source side de-dupe
- High Performance Incrementals
 - 20x-30x faster on dense file systems
 - Support for Linux file systems plugins
- No File System Scanning Necessary
 - File system change tracking through BackupBoost
 - Reduced disk I/O

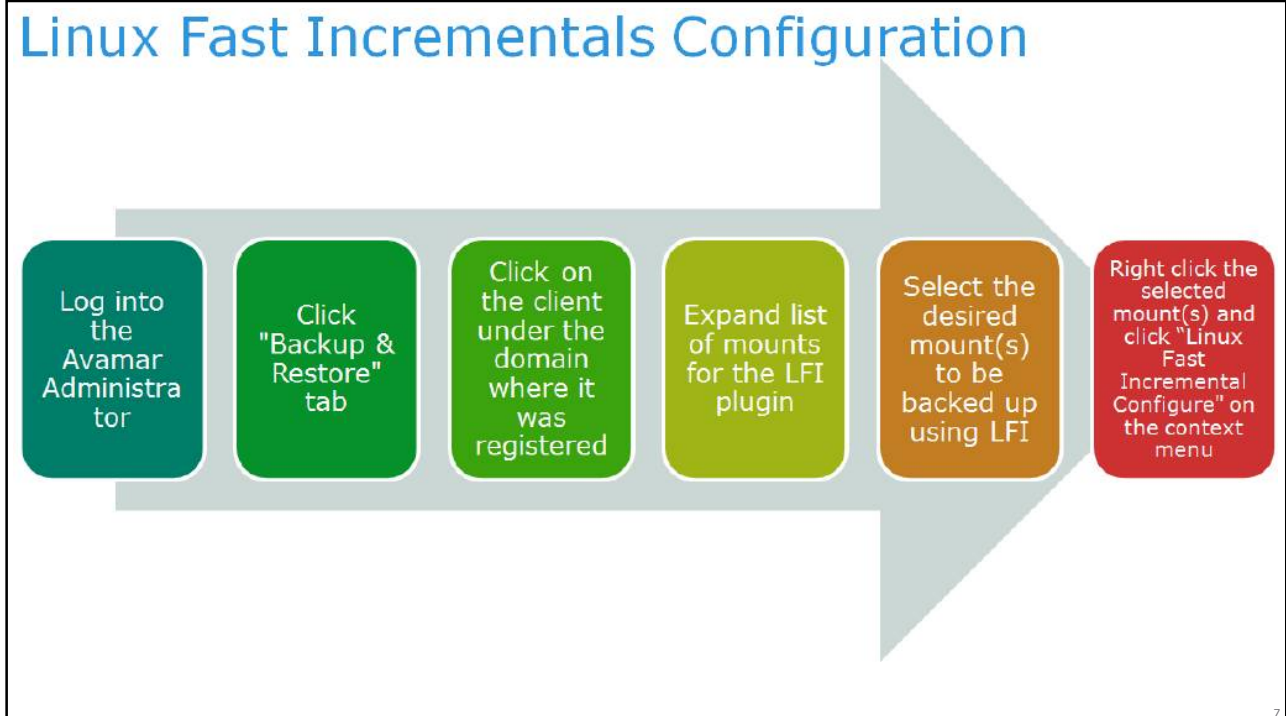


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WHY FAST INCREMENTALS

- Full backup
- Possibility to restore single file
- Possibility to search for files in Avamar
- Inclusions / exclusions

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Even faster
VMware backups

VM Image Backup Optimization



Optimized for Capacity (Existing Mode)

- Uses VS (Virtual Synthesis) and Writes

Optimized for Performance (Data Segmentation Mode)

- Uses FastCopy and OverWrites (FCOW)



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Prerequisites For Performance Mode

Source DD at 5.7.1+

New LO

Ingest will stay at Capacity Mode if prerequisites are not met

No Ingest failures (Silent fallback to Capacity)

Source/Target DDs at 5.7.1+ to get the Speedier Replication

Replication will stay at Capacity Mode if target DD prerequisite is not met

No Replication failures (Silent fallback to Capacity)

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Performance Mode – New Install vs Upgrade

New Install

- Optimized for Performance is default
- MC Server XML configuration file setting
`ddr_vm_segmentation_mode=8`



Upgrade

- Optimized for Capacity is default
- Can manually switch to new mode on protected VM



HyperV Incrementals

Hyper-V Plug-In – Incremental Backup

Leverages VSS for backup and restore

Backs up only the changes since last Full or Incremental Backup

Managed and maintained by using Recovery snapshots



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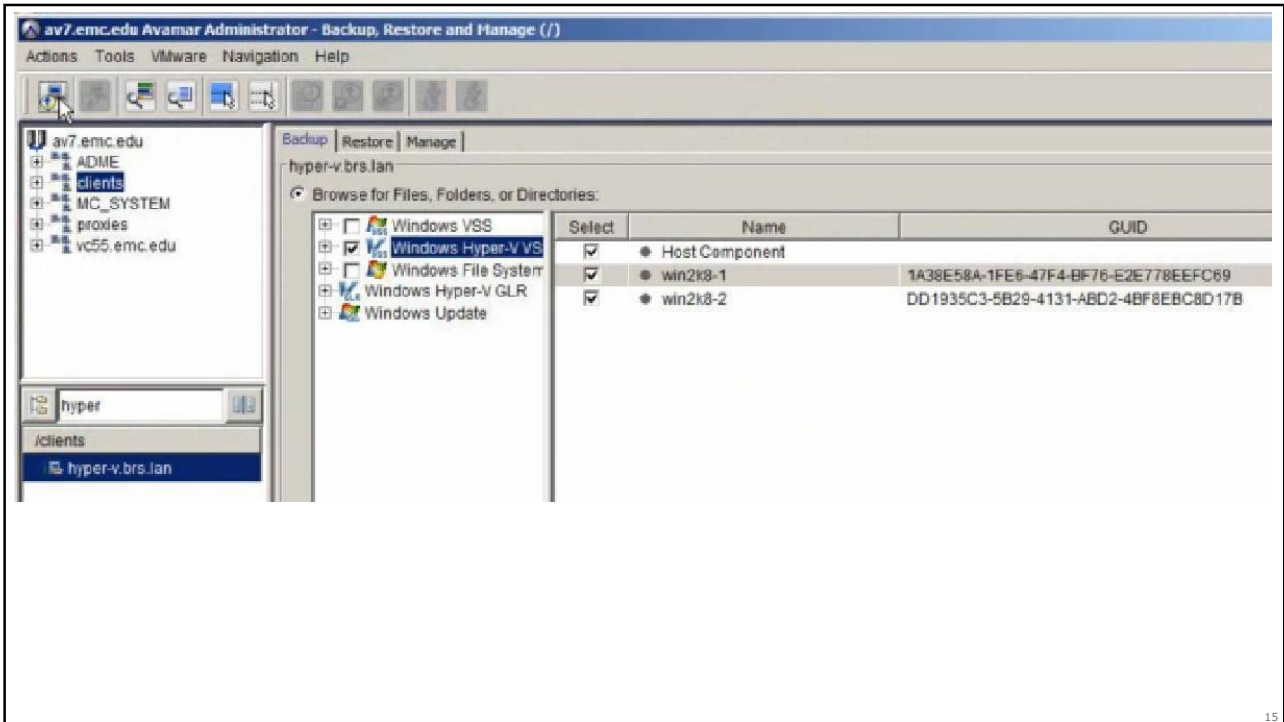
Hyper-V Plug-in – Supported Platforms

| Operating System | Supported | Unsupported |
|------------------------------------|-----------|-------------|
| Windows Server 2012 | ✓ | |
| Windows Server 2012 R2 | ✓ | |
| Windows Server 2008 R2 and earlier | | ✗ |

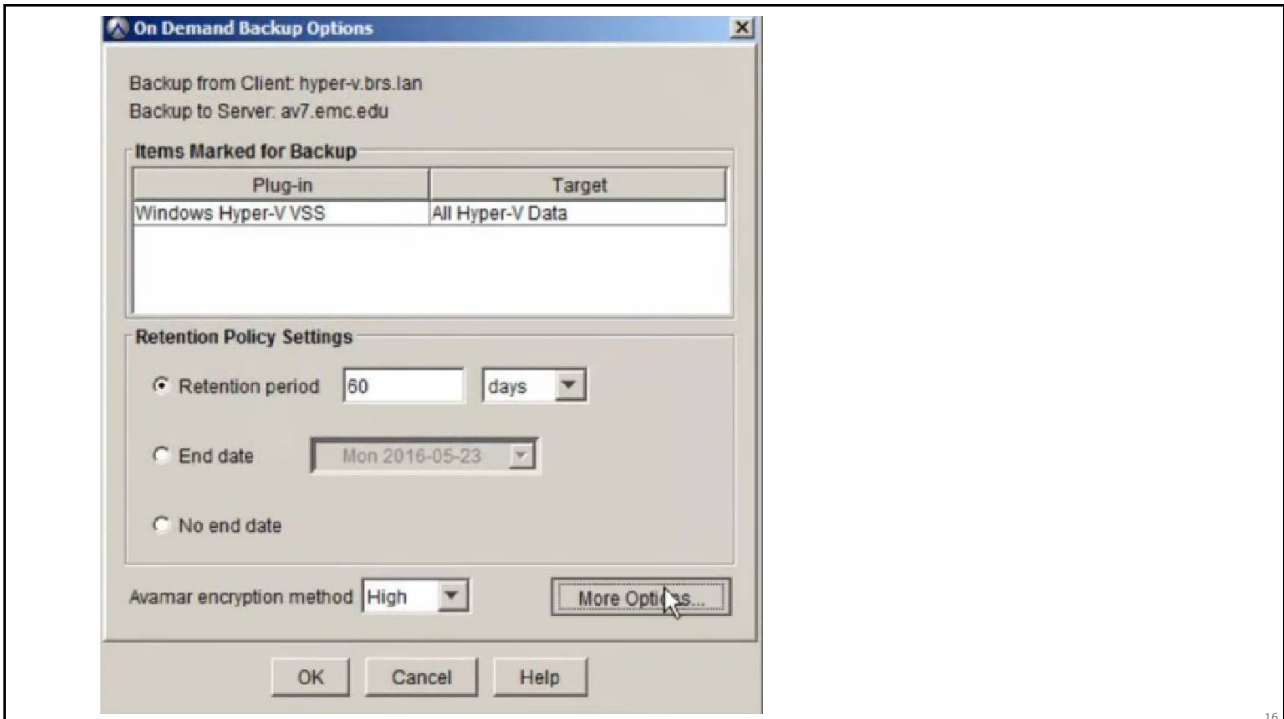
The supported platforms includes Windows Server 2012, and Windows Server 2012 R2. In this release, the support for Windows Server 2008 R2 and earlier have been dropped.

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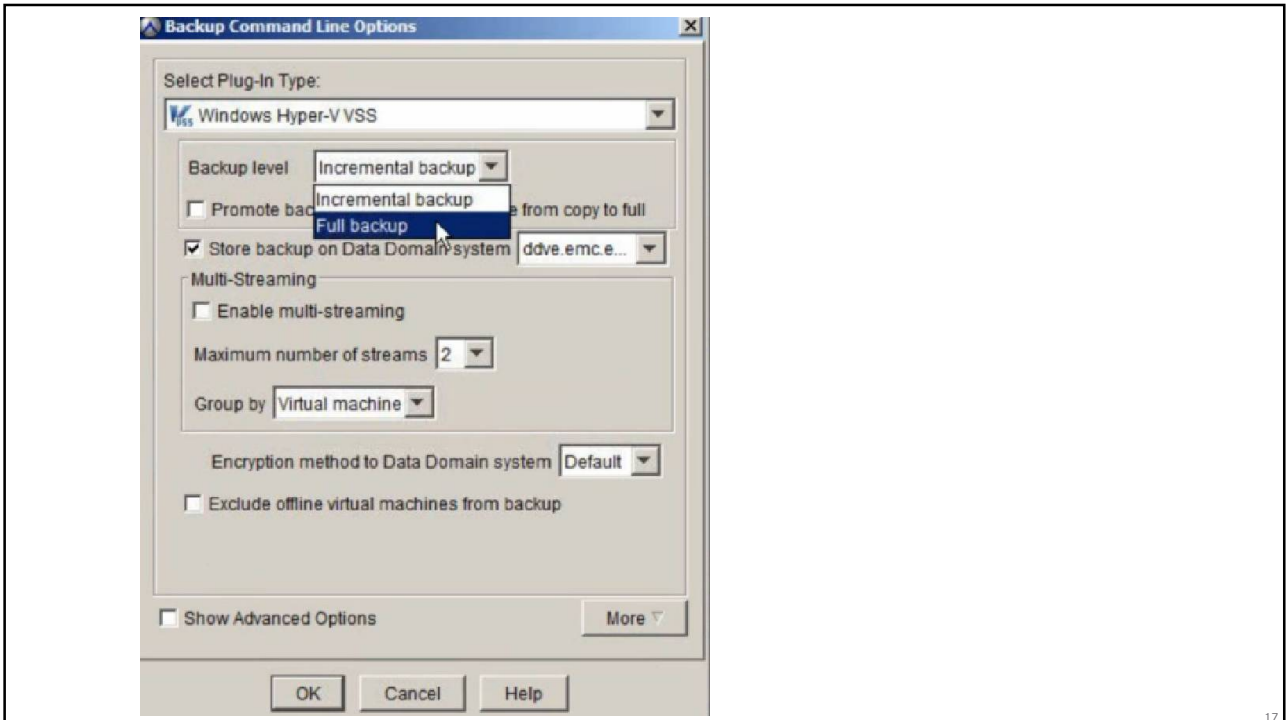


15

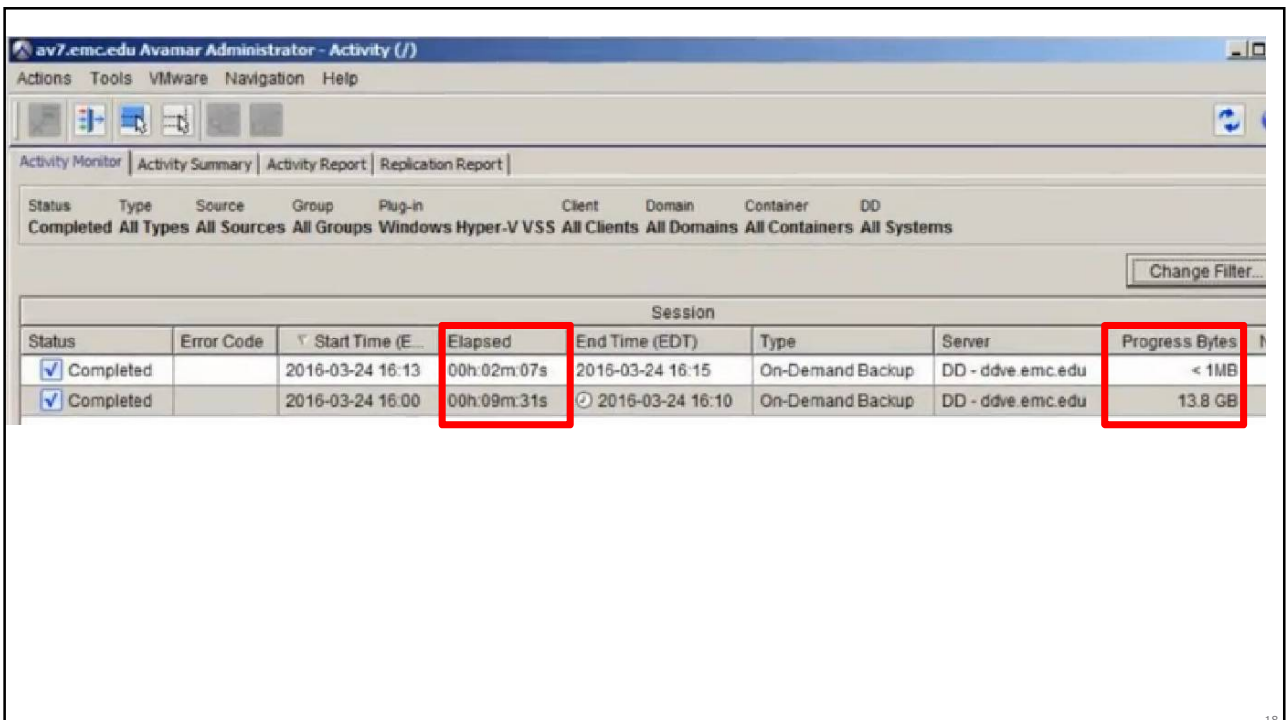


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OpenStack support

RELEASE FEATURE SUMMARY



Compatibility Guide

| Avamar | OpenStack Distribution | Release |
|--------|------------------------|---------|
| V7.3 | Mirantis, Redhat | Liberty |

- OpenStack DP Extension v7.3
 - On-line backup of OpenStack instance (boot and Cinder volume)
 - Restore to replace original instance (no boot volume)
 - Restore to new instance
 - Integrate with Keystone: supported roles
 - Cloud Admin: storage infrastructure & DP policy management (backup schedule/retention period)
 - Tenant Admin: policy assignment, on-demand backup/Restore
 - Customer-installable
 - REST APIs:
 - Define & Manage backup policy
 - On-demand backup/restore
 - instance (VM) registration
 - Avamar UI
 - Define & Manage backup policy
 - Monitor and report backup jobs
 - On-demand backup/restore



OPENSTACK DP REST APIS

- Register KVM instances with Avamar
- Backup a KVM instance & associated cinder volumes
- Restore an instance to replace original location
- Restore an instance to a new location
- Policy Create/Edit/Delete:
 - Adding new schedule:
 - daily, weekly, monthly, on-demand
 - Set retention time
 - Applied resource – VM(s)
- List of backups
- Get backup status: VM name, time start & complete, pass/fail (err fail error codes)
- True Keystone integration



RESTFUL API

<http://address:port/unlock/>



openstack
CLOUD SOFTWARE

REST API with protection/Access control using Keystone RBAC

EMC²

Data Domain
integration

Data Domain 5.7 Features and Compatibility

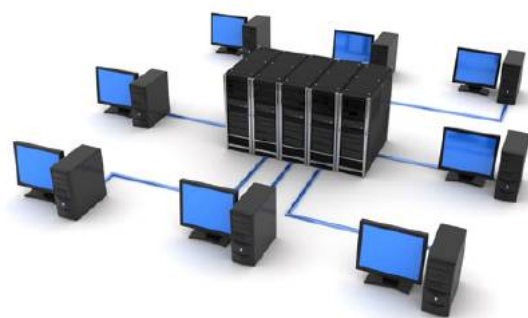
- Data Domain Virtual Edition
 - Up to 16TB storage
- Data Domain High Availability
 - DD9500 Only
- Increased Streams/M-Tree Support
 - 336 jobs and 500 streams per AVE
 - Up to a total of 1000 streams on DD
- Stream Quotas via DDCLI
 - M-Trees and Storage Units



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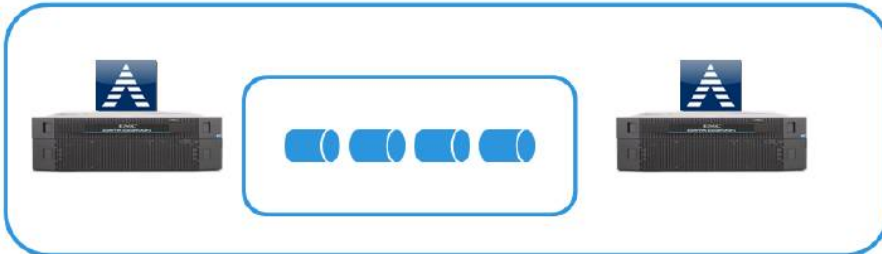
Pool Based Replication

- Group Prioritization
 - Oldest to Newest (default)
 - Newest to Oldest
 - Smallest to Largest
 - Largest to Smallest
 - Manual by Domain Path
- Group Parallelization
 - Better network utilization
 - Compatible with multi-stream and virtual synthetic replication

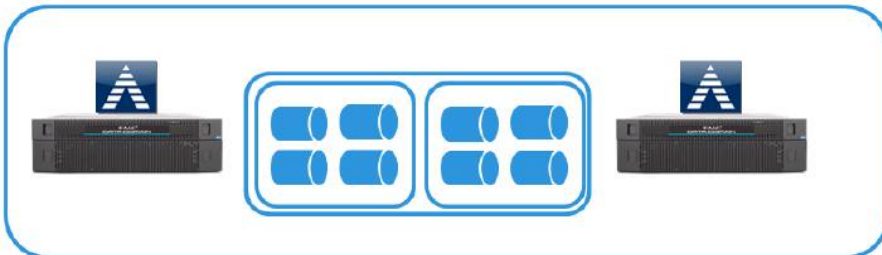


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Managed File Replication



- Current Behavior of Managed File Replication



- Pool Based Managed File Replication

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Data Domain Physical Capacity Reporting



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Backend Capacity Report

Backend Capacity Data Domain Report Type

Report Viewer

| Name | Type | Pre-Dedup (bytes) | Post-Dedup (bytes) | DeDup | Backups | Details |
|--------------------------------------|--------|-------------------|--------------------|--------|---------|---------|
| /clients/vfilesrv037.asi.lab.emc.com | Client | 34,941,377 | 6,320,748 | 81.88% | 1 | |
| /clients | Domain | 34,941,377 | 6,320,748 | 81.88% | 1 | |

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Database modules

Avamar 7.3 Sybase Enhancements

Added checks include:

- Recovery started
- DB offline for recovery
- DB shutting down
- Drop DB in progress

Restore Pending State

- Check for "restore pending state" before starting a backup

1

CLI Backup and Recovery

- Display Sybase CLI Backup and Recovery Details in MCS

2

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Lotus Plug-in: Enhancements

Backup and recovery

- Display Lotus CLI Backup and Recovery details in MCS

1

Faster data recovery

- Faster Recovery of Lotus data (transaction log prefetch)

2

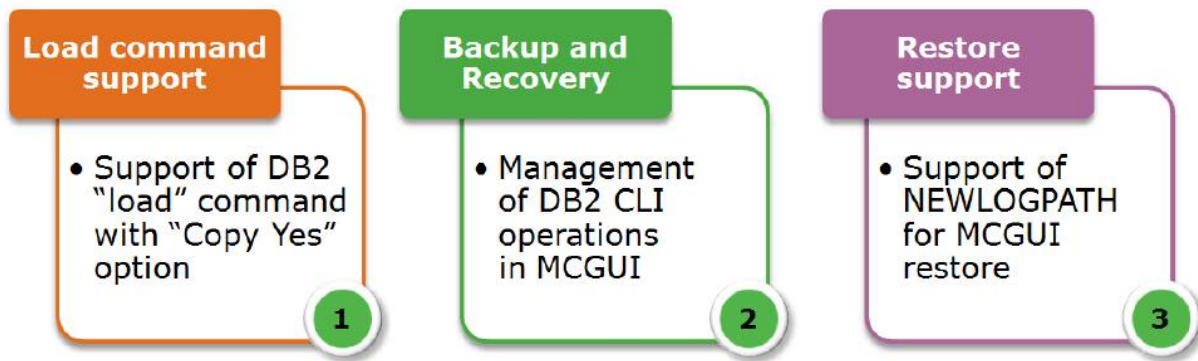
Error downgrading

- Support for reducing severity of DbOpen errors during backup

3

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IBM DB2: Feature Enhancements



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Management of Oracle CLI Operations in MCS

- Oracle backup and restore can be monitored through MCGUI
- Oracle backup and restore can be canceled through MCGUI
- CLI operations in Oracle RAC environments are also supported

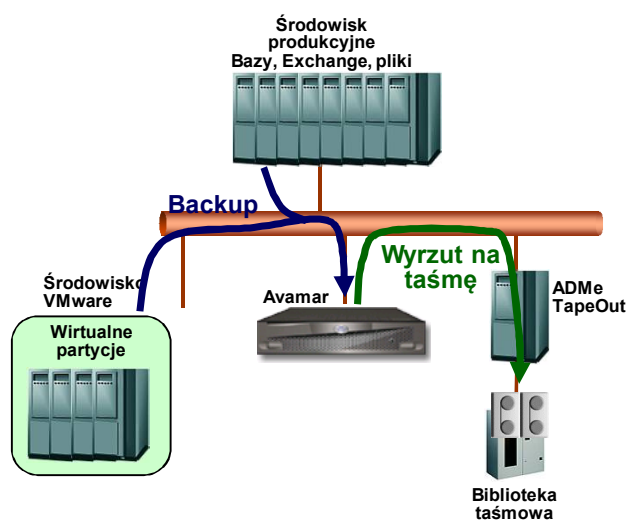
The Oracle plug-in has the same CLI monitoring in MCS feature. CLI backup and restore operations can be monitored and canceled through the MCGUI. Regular Oracle environments and RAC environments are supported as well.

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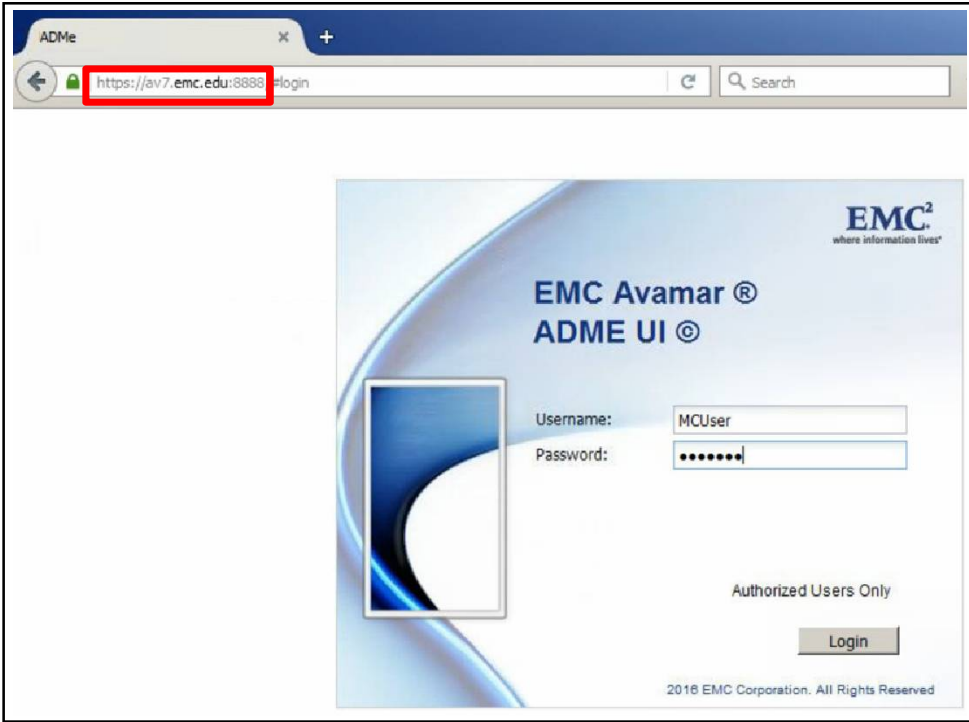
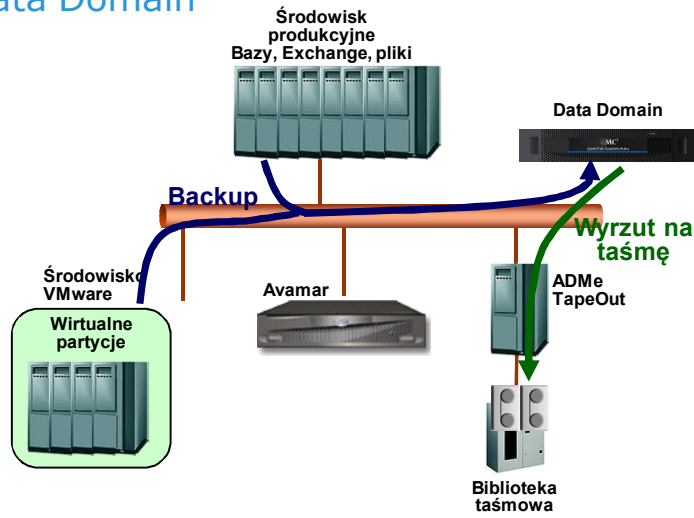
Avamar Tape Out

ADMe

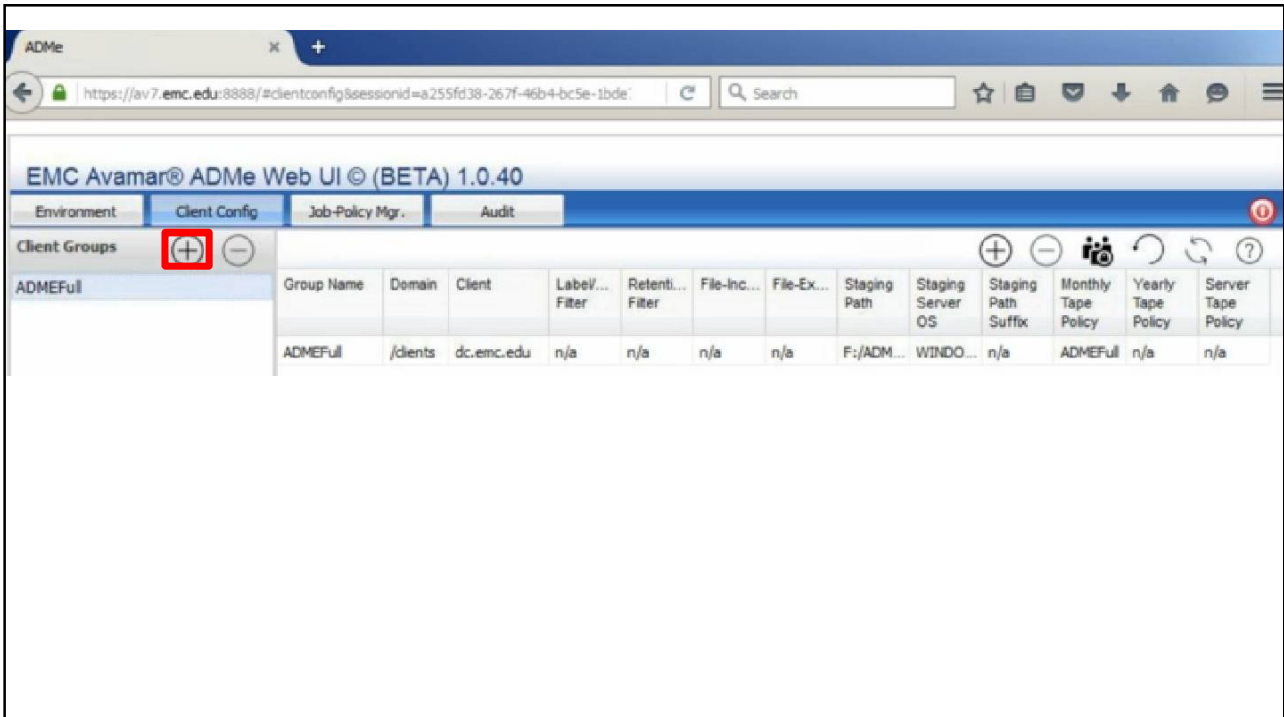
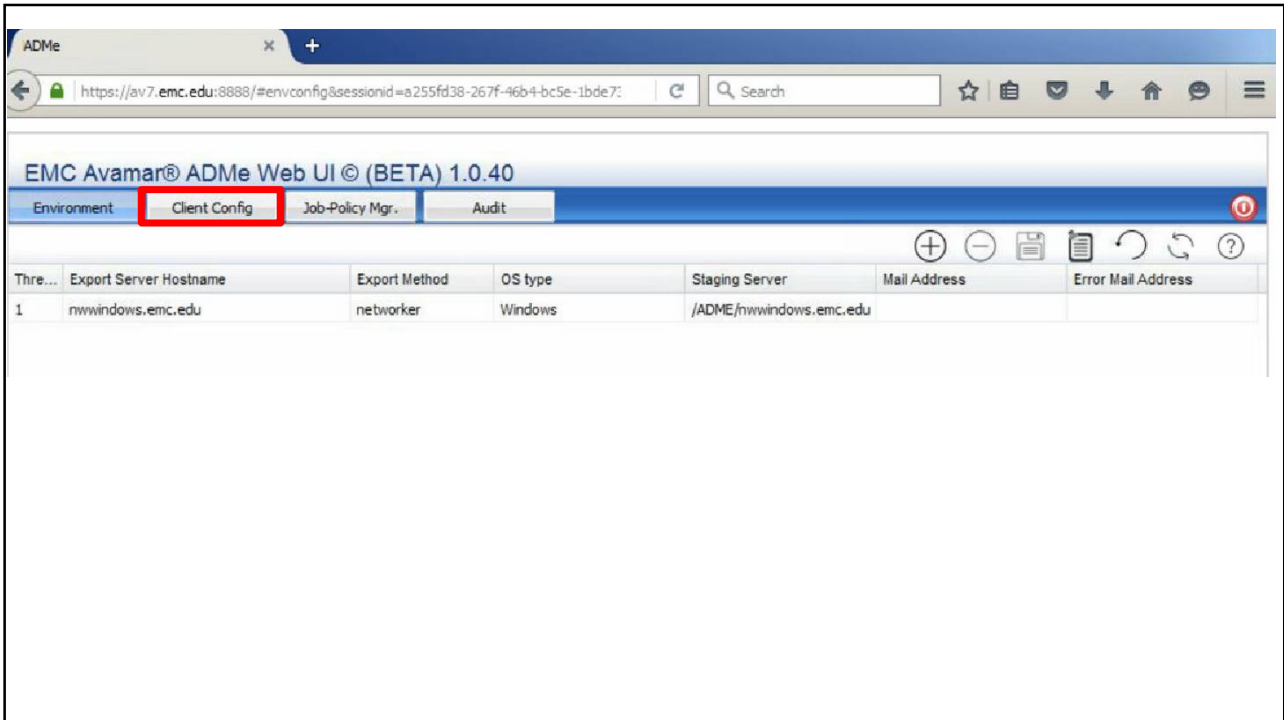
Avamar tape out Backup to Avamar



Avamar tape out Backup to Data Domain




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TITLE

Create Client Group

Group Name:  ADME


Label Name Filter:  clients

Retention Tag Value:  dc.emc.edu

Exclude Files:  MC_RETIRED

Include Files:  MC_SYSTEM

Staging Path:  proxies

Staging Server OS Type:  vc55.emc.edu

Destination Path Suffix:

Monthly Tape Policy:

Yearly Tape Policy:

https://av7.emc.edu:8888/#batchmanager&sessionId=a255fd38-267f-46b4-bc5e-1b

EMC Avamar® ADMe Web UI © (BETA) 1.0.40

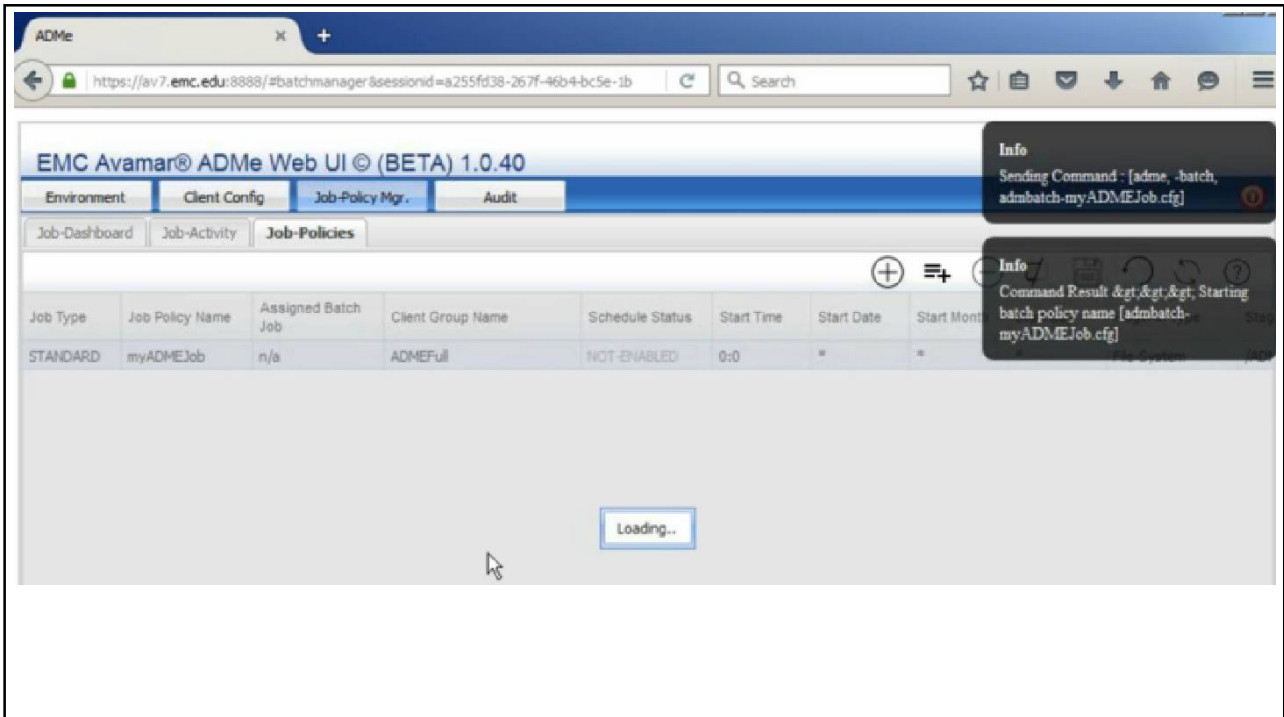
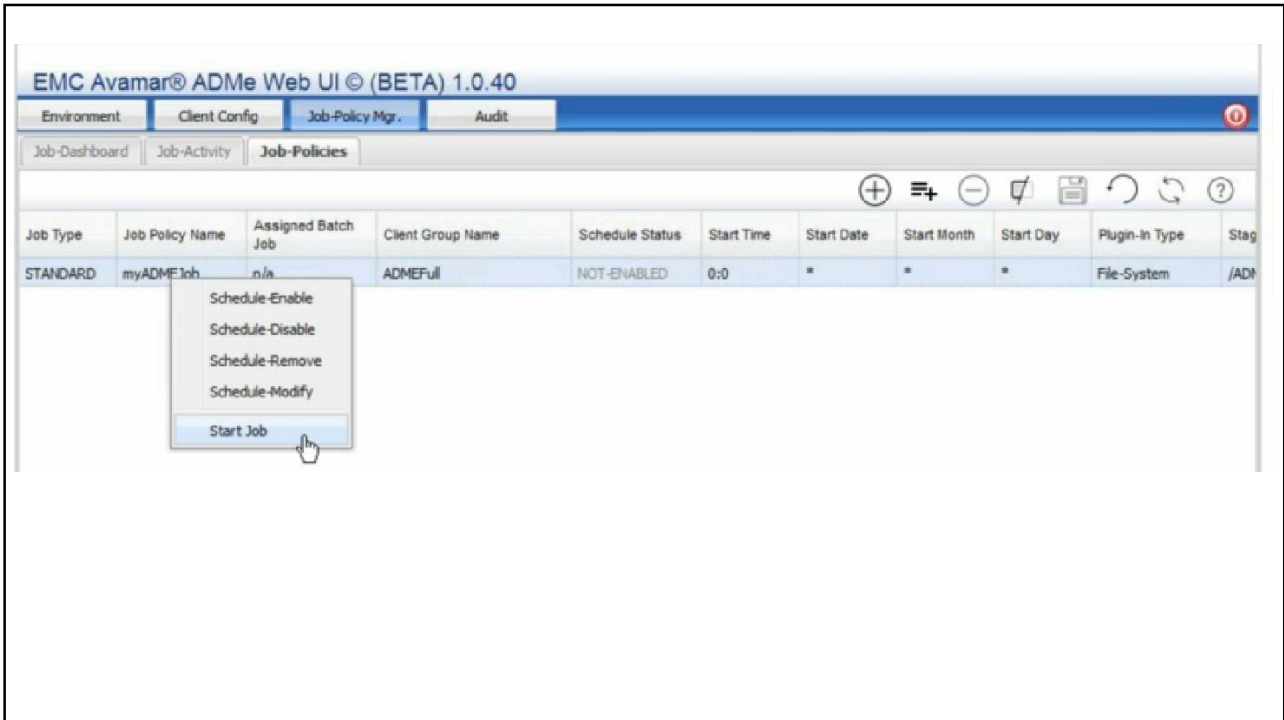
Environment Client Config Job-Policy Mgr. Audit

Job-Dashboard Job-Activity Job-Policies

| Job Type | Job Policy Name | Assigned Batch Job | Client Group Name | Schedule Status | Start Time | Start Date | Start Month | Start Day | Plugin-In Type | Stag |
|----------|-----------------|--------------------|-------------------|-----------------|------------|------------|-------------|-----------|----------------|------|
| STANDARD | myADMEJob | n/a | ADMEFull | NOT-ENABLED | 0:0 | * | * | * | File-System | /AD |

- Schedule-Enable
- Schedule-Disable
- Schedule-Remove
- Schedule-Modify
- Start Job

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TITLE

The screenshot shows the EMC Avamar ADMe Web UI interface. The browser address bar displays the URL: <https://av7.emc.edu:8888/#batchmanager&sessionid=a255fd38-267f-46b4-bc5e-1b>. The page title is "EMC Avamar® ADMe Web UI © (BETA) 1.0.40". The navigation menu includes "Environment", "Client Config", "Job-Policy Mgr.", and "Audit". The "Job-Policy Mgr." tab is active, and the "Job-Activity" sub-tab is selected. The main content area displays a table of job activity. The table has the following columns: Job Name, Assigned Batch Job, Last Status, Last Error, Group Name, Start Date, End Date, Elapsed Run Time, Migration Size KB's, and Client Count. The table contains one row for the job "myADMEJob". The "Last Status" cell for this job is highlighted with a red box and contains the text "RUNNING". The "Last Error" cell contains "None". The "Group Name" is "ADMEFull", the "Start Date" is "03/17/2016 11:08", the "End Date" is "03/17/2016 00:00", the "Elapsed Run Time" is "00:01", the "Migration Size KB's" is "0", and the "Client Count" is "0".

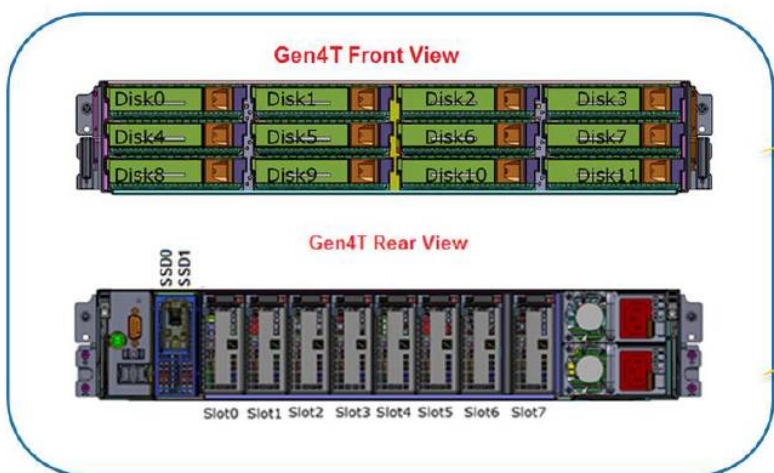
| Job Name | Assigned Batch Job | Last Status | Last Error | Group Name | Start Date | End Date | Elapsed Run Time | Migration Size KB's | Client Count |
|-----------|--------------------|-------------|------------|------------|------------------|------------------|------------------|---------------------|--------------|
| myADMEJob | n/a | RUNNING | None | ADMEFull | 03/17/2016 11:08 | 03/17/2016 00:00 | 00:01 | 0 | 0 |

The screenshot shows the EMC Avamar ADMe Web UI interface, similar to the first screenshot. The browser address bar displays the URL: <https://av7.emc.edu:8888/#batchmanager&sessionid=a255fd38-267f-46b4-bc5e-1b>. The page title is "EMC Avamar® ADMe Web UI © (BETA) 1.0.40". The navigation menu includes "Environment", "Client Config", "Job-Policy Mgr.", and "Audit". The "Job-Policy Mgr." tab is active, and the "Job-Activity" sub-tab is selected. The main content area displays a table of job activity. The table has the following columns: Job Name, Assigned Batch Job, Last Status, Last Error, Group Name, Start Date, End Date, Elapsed Run Time, Migration Size KB's, and Client Count. The table contains one row for the job "myADMEJob". The "Last Status" cell for this job is highlighted with a red box and contains the text "SUCCEEDED". The "Last Error" cell contains "None". The "Group Name" is "ADMEFull", the "Start Date" is "03/17/2016 11:08", the "End Date" is "03/17/2016 11:10", the "Elapsed Run Time" is "00:02", the "Migration Size KB's" is "2", and the "Client Count" is "1".

| Job Name | Assigned Batch Job | Last Status | Last Error | Group Name | Start Date | End Date | Elapsed Run Time | Migration Size KB's | Client Count |
|-----------|--------------------|-------------|------------|------------|------------------|------------------|------------------|---------------------|--------------|
| myADMEJob | n/a | SUCCEEDED | None | ADMEFull | 03/17/2016 11:08 | 03/17/2016 11:10 | 00:02 | 2 | 1 |

New hardware Gen4T

Avamar 7.3 - Avamar Gen4T



Interface options:
10GbE copper or
Optical

Gen4T nodes are
all 2U (including
Utility Node)

Avamar Gen4T General Specifications

| | ADS Gen4T |
|-----------------------|--|
| Processor | 1 x E5-2609 v3 (15M Cache, 1.90 GHz) |
| Memory | 16GB – 48GB depending on node type |
| Storage Node Capacity | 2TB – 7.8TB depending on node type |
| Network Connectivity | Customer options: <ul style="list-style-type: none">• 10GBASE-T• 10GbE Twinax/Optical (w/ SFP+) |

This table provides general specifications on the Avamar Gen4T hardware. It has a single processor that utilizes 16 GB and 48 GB of memory depending on the model or storage node type. The Storage capacity is from 2 to 7.8 TB, depending on the node type. Network connectivity includes 10GBASE-T copper, or 10G optical SFP (or Twinax).

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Downloader on
Avamar server

Local Downloader Service (LDLS)

Downloads AVP packages directly from EMC Online Support (ADS)

User must manually install and use on external Windows system (ADS)

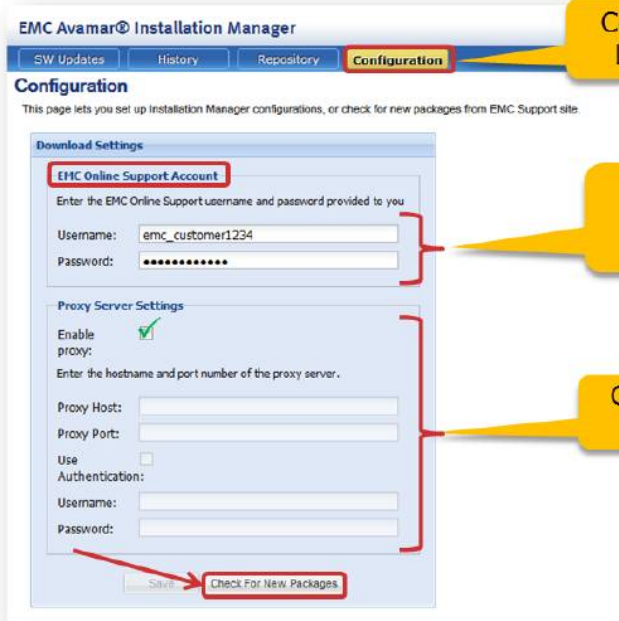
LDLS has similar functionality to existing Windows Downloader Service (ADS)

LDLS installed during Avamar 7.3 install/upgrade and used directly on Avamar systems

ADS is still supported in 7.3

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LDLS Configuration



The screenshot shows the 'EMC Avamar® Installation Manager' interface. At the top, there are tabs for 'SW Updates', 'History', 'Repository', and 'Configuration'. The 'Configuration' tab is selected and highlighted. Below the tabs, the page title is 'Configuration' and a subtitle reads 'This page lets you set up Installation Manager configurations, or check for new packages from EMC Support site'. The main content area is titled 'Download Settings' and contains two sections: 'EMC Online Support Account' and 'Proxy Server Settings'. The 'EMC Online Support Account' section has a red box around the title and contains fields for 'Username' (with the value 'emc_customer1234') and 'Password' (with masked characters). The 'Proxy Server Settings' section has a red box around the 'Enable proxy' checkbox, which is checked. Below this section are fields for 'Proxy Host', 'Proxy Port', and 'Use Authentication' (with sub-fields for 'Username' and 'Password'). At the bottom of the form, there are 'Save' and 'Check For New Packages' buttons, with a red box around the latter. A red arrow points from the 'Check For New Packages' button to a yellow callout box on the right.

Configuration tab for LDLS configuration

Access online support and download packages from EMC repository

Check the checkbox to *enable proxy* if needed

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Kiedy upgrade?

UPGRADE DO 7.3

- Prośba o wstrzymanie z upgrade'm się do ogłoszenia Target Code

Ogłoszenia

Warsztaty **Nowości w Avamar 7.3**

- Rejestracja / szczegóły:
 - <https://www.linkedin.com/pulse/dowiedz-si%C4%99-co-nowego-w-avamar-73-olkowski-daniel?trk=hp-feed-article-title-publish>
- Planowane terminy:
 - 27 września
 - 4 października

Jesienny cykl warsztatów z administracji

- Rejestracja
 - <https://www.linkedin.com/pulse/kalendarz-2016-warsztaty-z-administracji-data-domain-avamar-daniel?trk=mp-reader-card>
- Data Domain
 - 20 września
- Avamar
 - 23 października
- NetWorker
 - 22 listopada
- vSphere Data Protection
 - 6 grudnia

Questions?

| Status | Elapsed | Server | Progress Bytes | New Bytes | Client | Domain |
|---|-------------|-------------------|----------------|-----------|-------------------|---------------------|
| <input checked="" type="checkbox"/> Completed | 00h:00m:54s | DD - 10.64.123.58 | 200,0 GB | <0.05% | testw | Avc3.labd.local |
| <input checked="" type="checkbox"/> Completed | 00h:00m:59s | DD - 10.64.123.58 | 200,0 GB | <0.05% | MSSQL2012R2 | Avc3.labd.local/... |
| <input checked="" type="checkbox"/> Completed | 00h:00m:28s | Avamar | 6,5 GB | <0.05% | posaolkowdl4c.... | /clients |



Daniel.Olkowski@emc.com